REMARKS

Amendments

A. Amendments to the Specification

Amendments 1-4 to the specification update the statements of the preferred aspects of the invention so that they are in accordance with the claims set out in this Submission. Thus, the "first preferred aspect" now substantially repeats the wording of claim 48; the "second preferred aspect" now substantially repeats the wording of claim 36; and the "third preferred aspect" now substantially reflects the wording of the "package" claims 16, 29, 47, 56 and 72. Each of the first and second preferred aspects concludes with a statement that the membrane in question optionally has a P_{10} ratio, over at least one 10°C range between -5°C and 15°C, of at least 1.3, thus reflecting the P_{10} ratio required in claims 1 and 20.

Basis for the amendments to the specification is the same as the basis for the amended claims, as discussed in detail below.

B. Amendments to the Allowed Claims

As noted in the Summary at the beginning of this Submission, all the independent allowed claims, and many of the dependent allowed claims are unchanged.

Claim 3

Claim 3, previously allowed, has been restricted by the addition of two further requirements, these requirements finding basis, for example, in paragraphs (3) and (4) of allowed claim 29.

Claims 4-6

Claims 4-6, previously allowed, have been canceled.

Claims 9-12

Claims 9-10 were previously canceled. Claims 11-12, previously allowed, have been canceled because inquiry has shown that the polymers defined in those claims are unlikely to have a P_{10} ratio as required by claim 1.

Claims 17-19

Claims 17-19 were previously canceled.

Claims 21-22

Claims 21-22, previously allowed, have been canceled.

Claim 25

Claim 25, previously allowed, has been amended to correct a typographical error.

C. Addition of new claims 34 and 35 dependent on allowed claims

Each of Claims 34 and 35, dependent on claims 1 and 20 respectively, recites a number of alternative coating polymers. The definition of the coating polymers is the same as in original claim 14. Claim 14 was withdrawn from consideration by the Examiner, following the election requirement set out in the Office Action mailed June 18, 2002, and was canceled by the Examiner's Amendment accompanying the Notice of Allowance. As noted on page 8 of the Reply mailed December 6, 2002, to the Office Action mailed June 18, 2002, Applicant's' election was made without prejudice to Applicants' right to consideration of claims to additional species upon allowance of a generic claim, claims 1 and 20 being at that time (and remaining when allowed) generic claims encompassing not only the elected species but also the non-elected species of claim 14. It is submitted, therefore, that the addition of claims 34 and 35 raises no new issues.

D. Addition of new independent claims, and claims dependent thereon.

Claim 36

As briefly noted in the Summary of the beginning of this Submission, new claim 36 is an independent claim which is the same as allowed claim 1, except that it omits the requirement that the membrane has a P_{10} ratio, over at least one 10°C range between -5°C and 15°C, of at least 1.3. As will be clear from the detailed comments below, there is basis in the specification as filed for membranes which do not necessarily have a P_{10} ratio, over at least one 10°C range between -5°C and 15°C, of at least 1.3. The fact that such a P_{10} ratio is merely preferred, not essential, is stated explicitly on Page 10, lines 10-15, which reads as follows (emphasis added)

> *As discussed above, the properties of the membranes of the invention depend upon a number of factors, including the base film, the coating polymer, the coating composition, and the amount of coating composition applied to the base film. The membrane* ***preferably*** *has a P_{10} ratio, over at least one 10°C range between -5 and 15°C, preferably over at least one 10°C range between 0°C and 15°C, of at least 1.3, preferably at least 2, particularly at least 2.5, especially at least 2.6.*

For the sake of completeness, reference is also made to the following passages in the specification as filed.

(i) Page 3, line 27-page 4, line 10, which reads as follows (emphasis added)

> ***We have discovered that when a membrane is prepared by coating a thin layer of a polymer onto a suitable microporous film, it has permeability characteristics which depend on both the coating polymer and the microporous film.*** *We do not know exactly why this is so, and the results achieved by this invention do not depend upon any theory of its operation. However, we believe that the coating polymer effectively blocks most, but not all, of the pores of the microporous film (with the smaller pores being preferentially blocked); and that as a result, the permeability of the membrane results in part from gases which pass through the unblocked pores and in part from gases which pass through the coating polymer. In any event, the invention makes it possible to prepare novel membranes having very desirable permeability characteristics, and to achieve controlled variation of those characteristics.* ***For example****, the invention makes it possible to prepare membranes having an OTR greater than 775,000 (50,000), e.g. 1,550,000 (100,000) to 3,875,000 (250,000),*

or even higher, e.g. up to 7,750,000 (500,000) or more, a P_{10} ratio of at least 1.3, e.g. at least 2.6, and an R ratio of at least 1.5, e.g. at least 2.0.

This passage makes it clear that the inventive discovery is not limited to the use of any particular polymer, and that possession of a P10 ratio of at least 1.3 is exemplary not essential.

(ii) Page 5, lines 1-9, which reads as follows

The coating polymer should be selected so that the membrane has a desired P_{10} ratio and a desired R ratio, and should be coated onto the microporous film at a coating weight which results in a membrane having the desired balance between the permeability characteristics of the microporous film and of the coating polymer. For example, by choosing a crystalline coating polymer whose T_p is within or a little below an expected range of storage temperatures, it is possible to produce a membrane whose P_{10} is relatively large in the storage temperature range; furthermore, the size of the P_{10} ratio can be increased by increasing the ΔH of the coating polymer.

Again, this passage is not limited to any particular coating polymer or any particular P10 ratio. It also discloses (a) that in order to produce a membrane having a relatively large P_{10} ratio over a particular temperature range, one should select a crystalline coating polymer having a melting point (T_p) within or a little below that temperature range; and (b) that the size of P_{10} ratio depends directly on the ΔH (i.e. the heat of fusion) of the coating polymer. Although not explicitly so stated in the specification, it is of course well-known to polymer technologists that only crystalline polymers have melting points and that the heat of fusion of a crystalline polymer is a measure of its crystallinity.

(iii) Page 8, lines 17-23, which reads as follows (emphasis added)

The coating polymer can be a single polymer or a mixture of two or more different polymers. Preferably the coating polymer is a crystalline polymer having a T_p of -5 to +40°C, particularly -5 to 15°C, especially 0 to 15°C, e.g. 1° to 15°C, and a ΔH of at least 5 J/g, particularly at least 20 J/g. We have found that the higher the ΔH of the polymer, the higher its P_{10} value over temperature ranges which include T_p. The T_p and T_o values of the polymer are preferably such that T_p-T_o is less than 10°C, particularly 5 to 10°C.

This passage confirms the previous passage quoted above, in particular the relationship between the P_{10} ratio of the membrane and the crystallinity (if any) of the coating polymer.

(iv) Page 9, lines 7-12, which reads as follows (emphasis added)

> *Other polymers which can be used include acrylate polymers (including methacrylate polymers) which are not SCC polymers, e.g. acrylate polymers which are derived from one or more monomers as specified in (ii) above; fluoropolymers (the term "fluoropolymer" being used herein to denote a polymer in which the atomic ratio of fluorine to carbon is at least 1.5, preferably at least 2); cis-polybutadiene; poly(4-methylpentene); polydimethyl siloxanes; ethylene-propylene rubbers; and polyurethanes.*

It is well-known that many of the "other polymers" listed above are not crystalline polymers. It is clear, therefore, from the passages quoted above, that membranes in which the coating polymer is one of the listed "other polymers" will not have the P10 ratios associated with crystalline polymers.

Claims 37- 46

Claims 37, 38, 39, 40, 44, 45and 46are the same as allowed claims 2, 3, 7, 8, 13, 15 and 30, except that they are dependent on claim 36, rather than claim 1.

Claim 41 is the same as allowed claim 11 (now canceled), except that it is dependent on claim 36, rather than claim 1.

Claim 42 is the same as claim 12 (now withdrawn and canceled), except that it is dependent on claim 36, rather than claim 1. Claim 12 was withdrawn from consideration by the Examiner, following the election requirement set out in the Office Action mailed June 18, 2002, and was canceled by the Examiner's Amendment accompanying the Notice of Allowance. As noted on page 8 of the Reply mailed December 6, 2002, to the Office Action mailed June 18, 2002,, Applicants' election was made without prejudice to Applicants' right to consideration of claims to additional species upon allowance of a generic claim, claims 1 and 20 being generic claims encompassing not only the elected species but also the non-elected species of claim 12. Claim 36 is likewise a generic claim encompassing any polymer. It is submitted, therefore, that the presence of claim 42 raises no new issues.

Claim 43 is the same as new claim 34, except that it is dependent on claim 36, rather than claim 1. It is submitted that the presence of claim 43 raises no new issues, for the reasons set out in above in connection with claim 34.

Claim 47

Claim 47 is the same as allowed claim 16, except that it is dependent on claim 36, rather than claim 1, and omits the limitation that the package is stored in air. The specification as filed makes it clear that storage in air is optional, not necessary. For example, page 1, lines 14-15, and page 2, lines 11-25, refer in broad terms to the use of the gas-permeable membranes in packaging, without restriction to the storage of the packages in air.

Claim 48

As briefly noted in the Summary of the beginning of this Submission, new claim 48 is an independent claim which is substantially the same as allowed claim 20, except that it omits the requirement that the membrane has a P_{10} ratio, over at least one 10°C range between -5°C and 15°C, of at least 1.3. The comments above with respect to claim 36 are equally applicable to claim 48.

Claims 49-55

Claims 49, 50, 51, 52 and 55 are substantially are the same as allowed claims 21, 23, 24, 25 and 28 respectively, except that they are dependent on claim 48, rather than claim 20.

Claim 53 is the same as claim 27 (now withdrawn and canceled), except that it is dependent on claim 48, rather than claim 20. Claim 27 was withdrawn from consideration by the Examiner, following the election requirement set out in the Office Action mailed June 18, 2002, and was canceled by the Examiner's Amendment accompanying the Notice of Allowance. As noted on page 8 of the Reply mailed December 6, 2002, to the Office Action mailed June 18, 2002, Applicants' election was made without prejudice to Applicants' right to consideration of claims to additional species upon allowance of a generic claim, claims 1 and 20 being generic claims

encompassing not only the elected species but also the non-elected species of claim 27. Claim 48 is likewise a generic claim encompassing any polymer. It is submitted, therefore, that the presence of claim 55 raises no new issues.

Claim 54 is the same as new claim 34, except that it is dependent on claim 48, rather than claim 1. It is submitted that the presence of claim 54 raises no new issues, for the reasons set out in above in connection with claim 34.

Claim 58

As briefly noted in the Summary of the beginning of this Submission, new claim 54 is an independent claim which is substantially the same as allowed claim 29, except that

(a) it is written in independent form, and

(b) it omits the requirement that the membrane has a P_{10} ratio, over at least one 10°C range between -5°C and 15°C, of at least 1.3.

The comments above with respect to claims 36 and 47 are equally applicable to claim 56.

Claims 57-63

Claims 57-63 are the same as claims 49-55, except that they are dependent on claim 56 rather than claim 48. The remarks above in connection with claims 49-55 are equally applicable to claim 57-63.

Claims 64-65

Claims 64 and 65 are the same as allowed claims 31 and 32, except that they are dependent on claim 56, rather than claim 20.

Claims 66-77

Claim 66 is an independent claim which is substantially the same as claim 48, except that it is limited to the coating polymer comprising a polydimethyl siloxane.

Claim 67, 68, 70 and 71 are substantially the same as claims 49, 50, 52 and 55, except that they are dependent on claim 66, rather than claim 48.

Claim 69 requires an OTR at all temperatures between 20°C and 25°C of 775,000 to 3,100,000 ml/m^2.atm.24 hrs and an R ratio of at least 2.5,, for which there is basis on page 10, lines 17-20 of the application.

Claims 72-77

Claim 72 is an independent claim which is substantially the same as claim 56, except that it is limited to the coating polymer comprising a polydimethyl siloxane.

Claims 73-77 a substantially the same as claims 67-71, except that they are dependent on claim 72, rather than claim 66.

Patentability of the Claims

As noted in the Summary at the beginning of this Submission, it is believed to be clear that the new claims are patentable for the same reasons as the allowed claims. In this connection, it is noted that none of the arguments in the Appeal Brief is directed to the nature of the polymeric coating, and that on page 2, lines 24-25, of the Appeal Brief, it is explicitly stated that "the nature of the polymeric coating is not significant to the patentability of the appealed claims under 35 USC 102 and 103 in this appeal".

Comments on the Examiner's Reasons for Allowance

Applicants' Appeal Brief makes it clear that an average pore size of less than 0.24 micron, as required by all the claims, is not in itself a sufficient basis for the patentability of the claims. Thus, page 3, lines 9-12, of the Appeal Brief reads

> *Both independent claims require that the pores have an average pore size of less than0.24 micron. However, this requirement is not in itself a sufficient definition, and Applicants do not contend, for the purposes of this Appeal, that it is important to the rejection of the claims*

and Page 15, lines 29-31, of the Appeal Brief reads

Like claim 1, claim 20 also requires that the pores have an average size of less than 0.24 micron, but this feature is not relied upon in support of the patentability of the claims.

Applicants' position, as set out in full in the Appeal Brief, which was accepted by the Examiner, was that the prior art failed to teach the Applicants' discovery of the importance of size and distribution of the pores in the microporous film, as defined directly in claim 20 and as inherently produced by the process defined in claim 1.

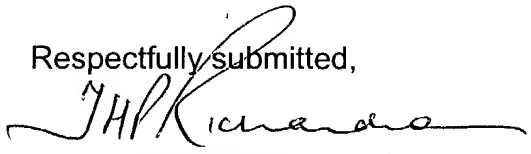
From these facts, will be clear that the statement by the Examiner that the "the prior art fails to teach or suggest that the pores in the microporous film have an average pore size of less than 0.24 micron and greater than zero" must be read in conjunction with the remainder of the paragraph, which discusses the effect of differences in the size and distribution of pores in the microporous film, and concludes "the reference, alone or in combination failed to recognize the effect or criticality of pore size and are therefore not seen to teach or fairly suggest to invent as claimed".

For the sake of completeness, it is also noted that, as set out in detail in the Appeal Brief, a number of the dependent claims contain additional features which render them independently patentable.

CONCLUSION

It is believed that this application is now in condition for allowance, and such action at an early date is earnestly requested. If, however, there are any outstanding issues that could usefully be discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,



T. H. P. Richardson,
Registration No.28,805
Tel No. 650 854 6304